

Hi Samuel,

Thanks for the latest information on the above scheme. I understand the EA are now satisfied with the volumes of storage gains and it's a case of confirming that the void space (undercroft parking area) will be fully functional and meet EA criteria.

I've attached a plan from JSA Architects which I hope will confirm this – to be clear, where the undercroft area is proposed this will be fully open, from ground level up to, the underside of the first floor slab, and will be open around the perimeter to meet EA requirements as you have reiterated below (given it is a fully open area, this is likely to significantly exceed the usual EA requirements in any case).

As you will note, the scheme is outline in nature but we would be happy if the EA were to specify their void requirements into a suitably worded planning condition if this would allay your concerns.

Kind regards,

**Richard Fisher**

Associate

For and on behalf of Peter Brett Associates LLP - [Reading](#)



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**From:** Planning\_THM [[mailto:Planning\\_THM@environment-agency.gov.uk](mailto:Planning_THM@environment-agency.gov.uk)]

**Sent:** 18 June 2018 11:18

**To:** Shumol Bari <[sbari@peterbrett.com](mailto:sbari@peterbrett.com)>

**Subject:** RE: EA comments on flood compensation for undercrofts - Planning Application 16/00472/OUT - Grundon Waste

Dear Shumol,

Thank you for your email and our apologies for the delay in our response to you. Having reviewed the information submitted below, we have the following comments to provide you.

We are pleased to see the clarification that there will be 576.4m<sup>3</sup> of flood plain storage gained on the site. Currently, no diagram has been submitted to show the design of the undercroft voids. We therefore cannot judge if there will be a free flow of water running through the structure. As such, we will be maintaining our objection until these points have been met. To overcome this objection, please submit the following information to the Local Authority for us to review:

1. Provide a diagram of the undercroft void which includes openings to allow flood water to flow through and drain properly along with the height of the proposed undercroft voids. Specifically we want to see the following:
  - The underside of the proposed void is not set higher than the 1 in 100 year with an appropriate allowance for climate change flood level.
  - The openings to the void do not extend from the existing ground level to above the 1 in 100 year with an appropriate allowance for climate change flood level.

- 1 metre wide openings have not been provided in every 5 metre length of wall on all sides.
- Void openings have not been provided on all sides of the proposed building(s).

Once again, thank you for consulting us on this application. If I can be of any further assistance, please contact me.

Kind regards,

Samuel Pocock  
Planning Advisor, Thames Sustainable Places Team  
**Environment Agency** | Red Kite House, Wallingford, OX10 8BD

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**From:** Shumol Bari [<mailto:sbari@peterbrett.com>]  
**Sent:** 23 May 2018 13:05  
**To:** Planning\_THM <[Planning\\_THM@environment-agency.gov.uk](mailto:Planning_THM@environment-agency.gov.uk)>  
**Cc:** Richard Fisher <[RFisher@peterbrett.com](mailto:RFisher@peterbrett.com)>  
**Subject:** RE: EA comments on flood compensation for undercrofts - Planning Application 16/00472/OUT - Grundon Waste

Dear Sam,

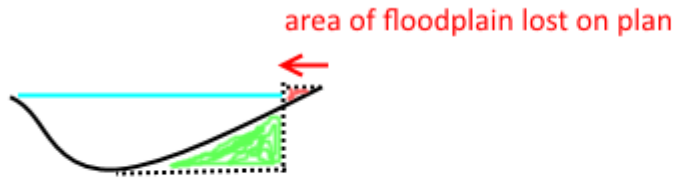
Following on from our phone earlier this morning.

I have looked at your flood storage calculations and think there has been some misunderstanding on how we are increasing the overall storage volume on site in the each of the volume for volume bands, whilst the overall area of floodplain is being reduced in the 89.95 m band.

Your volume calculations are basic as you are assuming an even depth of flooding (0.2 m) at each band. However in reality the ground levels at each band are not set to a flat level of 89.75, 89.95 and 90.15 m but, as natural ground levels, they will have varying depths of flooding at each level. Your volume estimates assume a prismatic volume which would over estimate the total volume at each band in the baseline and post development schemes.

Hopefully this figure explains this;





dashed line is proposed excavated area/platform

green is volume of flood storage gained

the red area is some of the floodplain storage lost (less than what was gained)

The green area in the sketch figure would therefore be a gain in flood volume despite the flood extent area being reduced.

Additionally I think there was a miscalculation in your estimate volumes in your email below. Where you are suggesting a 127 m<sup>3</sup> gain in the 89.95 to 90.15 m band, it should be, by your calculations (17009-13834) \*0.2 = 635 m<sup>3</sup> gain (you may have accidentally multiplied the 635 by another 0.2 to get the 127 figure?). However as I have explained your volume calculations overestimate the actual volumes on site.

Our drawing 33390/4001/004 shows the volume calculations based on the 3d model of the groundworks we created to assess the floodplain compensation, showing the net gains in volume, within the building footprint and outside the building footprint, at each band and the overall gain of 576.4 m<sup>3</sup>.

FLOOD COMPENSATION ANALYSIS				
DEPTH BELOW FLOOD LEVEL	EXISTING FLOOD STORAGE (m <sup>3</sup> )	POST DEVELOPMENT FLOOD STORAGE (EXTERNAL TO BUILDINGS) (m <sup>3</sup> )	POST DEVELOPMENT FLOOD STORAGE (WITHIN UNDERFLOOR VOIDS) (m <sup>3</sup> )	NET GAIN (m <sup>3</sup> )
0-100mm	1011.3	953.9	205.6	+ 148.2
100-200mm	785.1	775.5	168.6	+ 159
200-300mm	597.2	639.3	83.7	+ 125.8
300-400mm	469.1	530.1	19.9	+ 80.8
400-500mm	340.9	386.8	0	+ 45.9
500-600mm	235.1	242.3	0	+ 7.2
600-700mm	174.1	175.4	0	+ 1.3
700-800mm	126.3	129.3	0	+ 3
800-900mm	75.1	78.0	0	+ 2.9
900-1000mm	54.3	56.8	0	+ 2.5
TOTAL GAIN (m <sup>3</sup> )				+ 576.4

Our volume calcs indicate a net gain in storage at all levels in 100 mm bands to provide an overall increase in flood storage at the site, compensating for any storage that would be lost by our proposed development within the baseline floodplain area.

I hope this email satisfies this remaining enquiry and allows you to accept the FRA for the Grundon site.

If there are any further questions please feel free to contact me.

Kind regards,

**Shumol Bari**

Modeller

For and on behalf of Peter Brett Associates LLP - [Reading](#)



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**From:** Planning\_THM [[mailto:Planning\\_THM@environment-agency.gov.uk](mailto:Planning_THM@environment-agency.gov.uk)]

**Sent:** 16 May 2018 09:51

**To:** Shumol Bari <[sbari@peterbrett.com](mailto:sbari@peterbrett.com)>

**Subject:** EA comments on flood compensation for undercrofts - Planning Application 16/00472/OUT - Grundon Waste

Dear Sirs,

Our apologies for any confusion caused regarding our comments provided for planning application 16/00472/OUT. Having spoken with my flood risk colleagues, we would like to provide you with the following advice which we hope will help to address your concerns regarding the calculations within the flood compensation diagram in terms of the loses and gains in flood plain storage proposed.

The proposed flood compensation drawing for Grundon Waste Management Depot Banbury, prepared by Peter Brett Associates, reference 33390/4001/ 005, shows 6 cut through diagrams. These range from 89.75m<sup>2</sup> to 90.15m<sup>2</sup>, in cut throughs of 200mm, with 600mm between all 3.

We have looked at the 3 cut throughs and the differences between the existing and proposed volumes. We have calculated the proposed storage multiplied by 0.2 (representing the 200mm flood depth) and did the same for the existing storage. We then worked out the existing storage minus the proposed storage.

For example in the 89.75m cut through  $0.2 \times 8337 = 1667.4$  and  $0.2 \times 8378 = 1675.6$  then  $1675.6 - 1667.4 = 8.2$ . As a result we end up with a gain of 8.2 and 127 which equals 135.2 but a loss of 174.4 giving an overall loss of 39.2.

It is unclear if the volumes provided account for the whole building or for the footprint of the building lost. Please feel free to clarify via additional documentation if we have misunderstood this view.

Please do not hesitate to contact me to discuss.

Kind regards,

Samuel Pocock

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